MEDICAL EDUCATION, MEDICAL PRACTICE, AND MEDICAL CARE*

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IN a Public Health Service publication entitled *Physicians for a Growing America* is contained the report of the Surgeon General's Consultant Group on Medical Education. It points out that three major phenomena over the past thirty years have contributed to an increasing need by the nation for physicians. They are: 1) growth in population and change in its age composition with a more than proportionate increase in the younger and older age groups, which need the most medical service; 2) increasing use of medical services arising from improved economic and educational status with consequent higher standards of living, urbanization, hospital and medical care insurance, advances in medical knowledge; 3) changing patterns of medical service as reflected in increased utilization of hospitals; increase of physicians in hospital service; increased numbers of physicians in teaching, research, public health, and industrial medicine; decrease of physicians in private practice; and growth of specialization.

These trends were examined in preparation for estimating the magnitude of need for physicians by 1975. In full recognition that the physician-population ratio is a very crude index of adequacy of supply, the group set as a maximum goal the maintenance of the current ratio through 1975. The present ratio for medical physicians only is 133 per 100,000 population. To maintain that ratio will require a total of 311,500 physicians in 1975.

The net gain in number of physicians in any year depends on the sum of the number graduating from U.S. medical schools and new licentiates graduated from foreign schools, less loss of physicians by death. The principal sources of supply are the United States medical schools. In 1959 the medical schools graduated 6,900 students. It is estimated that the number will soon reach 7,400 annually.

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Graduates of foreign medical schools are a secondary source of supply. Seventeen per cent of 7,809 physicians who entered practice in 1958 received their medical education in countries other than the United States. Some were United States citizens who had gone to other countries for their medical education. Based on the experience of the past 10 years, it is conservatively estimated that the number of foreign graduates licensed for practice will level off at 750 per year.

To maintain the 1959 physician-population ratio of 133 will require 311,500 physicians in 1975, and a graduation rate of 10,360—about 3,000 more than at present.

The present production rate of 7,400 graduates will not be adequate to maintain the ratio. In fact, if in the next 15 years the number of annual graduates of United States medical schools does not increase above the present rate, the physician-population ratio in 1975 will fall substantially to about what it was 30 years ago.

In the last 30 years the number of graduates has risen fairly steadily through expansion of existing schools and development of new schools. If this expansion rate should continue until 1975, the annual output of graduates would become about 8,500—a number still almost 2,000 short of the goal.

It is evident that if the present physician-population ratio is to be maintained during the next 15 years, the present production rate, even an increasing rate that includes increments comparable to those recorded in the recent past, will not suffice.

It is concluded that to keep up with the expected population growth by maintaining the present physician-population ratio, it will be necessary to increase the enrollment of existing medical schools and establish a number of new schools, probably 20 or 24.

To attain a goal of 11,000 medical graduates a year by 1975 will require about 12,000 entering students in 1971. There is some question whether this quota will be satisfactorily met.

In the past six years increasing difficulty in filling first year classes with acceptable students has been reported. There is some indication that the quality of medical students is not as high as a few years ago.

There are four deterrents to seeking a medical education: 1) Competition from other professions with attractive and challenging opportunities; 2) the time required for the education and training of a physician, many years more than most other professions; 3) lack of oppor-

tunity; 4) the high cost which can be expected to grow higher.

In addition to the question of meeting the quota of medical students, the cost of construction and operation of a new medical school must also be considered. In the modern medical school an educational program, medical care, and research are interrelated. The medical school needs classrooms and laboratories, clinical teaching facilities, and space for research. A library and student living quarters are also desirable. These facilities may be grouped under the heading of teaching, teaching hospital, and research, although it is impossible to draw a sharp line between the facilities used for one purpose as against the other.

In recent years the cost of constructing a new basic science teaching plant, exclusive of hospital and research facilities, has averaged about eight million dollars, with a wide range of variation. Similarly, costs of building teaching hospitals vary widely. Recent figures are in the range from five million to 14 million dollars for a 300-500 bed hospital. Construction of a research center may cost about two million dollars. Thus, the cost of a medical school and associated teaching hospital may on the average reach 20-22 million dollars. This would be capital expenditure for construction of a medical school.

But funds for its operation and maintenance must also be taken into account. In 1958 the 85 medical schools in the United States spent an estimated total of 264 million dollars. Of this amount 176 million was for basic operations and the remaining 88 million for grant-supported research. Hence, the average annual budget for the basic operations for a medical school was two million dollars.

As for modernization and expansion of the physical facilities of existing medical schools, a recent survey estimated that 325 million dollars were needed for new construction and renovation of teaching facilities, not including hospitals and research facilities.

Establishment of a new medical school is not a rapid process. It is estimated that 10 years are required before the school becomes fully operative and productive.

Finally, it is somewhat paradoxical that the proposed solution to the prospective shortage in medical manpower contributes itself to aggravating that shortage. If 20-24 new medical schools are constructed, they must be fully staffed to perform their functions in teaching, medical care, and research. Most of the staff will be physicians.

These, then, are some of the data, comments, conclusions, and

recommendations contained in the Public Health Service report.

The report concentrates on one problem: the probable shortage of physicians in the future. This subject is examined in many aspects with presentation of much data and information. Its recommendation that more medical schools be constructed represents one solution. It should be emphasized that the recommendation is based on acceptance of the existing system of medical education and demonstrated trends.

Purpose of This Article

The present article is not an attempt to cast doubt on the data as evidence. It does not challenge the conclusion that more physicians will be needed in the future. It does not deny that one possible solution is more medical schools. Rather, it would raise other questions germane to the problem of shortage of physicians; it would examine pertinent parts of the educational system and the prevailing practice of medicine, some touched upon but unexplored, others unmentioned. Particularly would it scrutinize the trends and some of the problems and difficulties that may be linked with the shortage of physicians. These matters would be examined as principal points, not as subordinate considerations. In the process other evidence would be brought in. In short, matters which have a potent influence on medical manpower, and should therefore be considered in proposing a solution, will be taken up. A broader approach is especially desirable since construction of medical schools is so costly and time-consuming. Here are some of the questions that may properly be raised:

Is the numerical strength the only consideration?

Should there be specification of the kinds of physicians?

Are the trends in medical education and in the practice of medicine in a desirable direction in producing the kind of physician needed for optimum and efficient medical care?

Are there other related difficulties and problems which exist now?

Is construction of more medical schools the complete and only solution to the shortage of physicians?

What will be the effect of this step on the trends and on problems that now exist?

Will it solve or magnify them?

Is the system of medical education in need of even more scrutiny and study, not just limited to numerical output, before more schools are

constructed?

What kind of physician should be produced for optimum and efficient care of the nation's population?

In raising these questions it is not suggested that an either-or choice of alternatives is mandatory, that acceptance of one line of action automatically excludes others. Quite the contrary. It is evident that production of physicians for optimum and efficient medical care is a complex, not a simple procedure. Hence, it should be approached broadly in proposing recommendations to modify or amplify it. New medical schools may indeed be and doubtless are needed, but how many is one critical question. Other changes that would affect the adequacy of output of physicians in the future, the number of schools needed, and the kind of practicing physicians may also be necessary.

These questions are associated with both medical education and medical care. They are raised because there are trends and existing difficulties that are well-known and are part and parcel of the problem of medical manpower. Data on them are presented briefly in the Public Health Service report. But because of their consequences, the present trends deserve more searching consideration. They are:

On the one hand

1. There is an increase in the number of interns and residents in hospitals.
2. There is a demonstrated rise in the number of specialists and a decline in the number of general practitioners.

On the other hand

1. There is a shortage of interns in a proportion of the hospitals.
2. There is an anticipated shortage of high-grade applicants for matriculation in medical schools.

These lines of evidence lead directly to two topics, one in medical education, the other in medical practice. The first is the internship and residency training program, and the other is specialization in medical practice. Obviously, these two developments are interrelated and both have a profound influence on the need for medical manpower.

The Intern Training Program

Let us trace the steps which the medical student upon graduation takes toward and through the residency training program. Upon grad-

uation he takes an internship. By one definition the internship is the fifth year of medical education; it is usually the first year of hospital experience immediately following the successful completion of four years of study in an approved medical college.

Purpose. The current concept of the purpose and function of the internship is precisely described in the following account taken from an article entitled "Essentials of an Approved Internship", originally published in 1919 and reprinted many times since by the Council on Medical Education and Hospitals of the American Medical Association: "When the internship became a generally recognized part of the education of a physician some 40 years ago, it was designed to provide the graduate's initial contact with patients, including responsibility for their care. It no longer constitutes such initial contact nor is it any longer the final step in the formal education of most physicians. Rather, it is now only one of several graded steps toward the assumption of total responsibility for patient care. As such, it remains an essential part of the education of a physician, but should be redesigned to fulfill its present purpose. With this concept in mind, it is evident that the internship can be conducted only in those hospitals in which the educational benefits to the intern are considered of paramount importance with the service benefits to the hospital of secondary importance."

This conception of the purpose of the internship is reiterated in the same article: "All hospitals offering intern training programs should be subject to the following guiding principles: 1) While the internship combines two functions—an educational period in the training of young physicians and a position rendering medical care and service to patients in hospitals and assistance to the staffs of hospitals—its educational function is of primary and paramount importance and its service function is secondary and incidental; 2) the service function of the internship should not be permitted to subordinate the educational purpose of the internship."

Formerly, interns largely rendered service to a hospital and learned by doing, with little or no organized and systematized educational program. Today, to allow ample time for the educational program, the intern's service duties are restricted. In short, much of his time is preempted and preoccupied by the education program.

Naturally, medical graduates want to take their internship in hospitals approved for intern education by the Council on Medical Educa-

tion and Hospitals. To win this approval—which is conceived to confer considerable prestige—a hospital must meet and maintain a set of standards formulated by the Council.

In adopting the standards and program, and thus winning approval, it must subscribe or submit to the Council's tenet "that the internship can be conducted only in those hospitals in which the educational benefits to the intern are considered of paramount importance with the service benefits to the hospital of secondary importance".

There is no regulation which requires a hospital to justify its number of requested interns. Its self-determined complement is subject to one delayed control: "A hospital which for two successive years does not obtain one-fourth of its stated complement of interns may be disapproved for intern training." The risk of incurring this penalty is the only restraining influence on possible overbidding for interns.

Less than 15 per cent of the hospitals in this country are approved for intern education.

It is apparent that the hospital, in addition to its function of medical care, has more and more become an organized and elaborate teaching center, and that avowedly the educational function is primary and the service function is secondary and incidental. The hospital is caught in a squeeze play. It needs approval for prestige and to obtain interns. Therefore, it must provide and maintain a costly teaching program. Furthermore, because so much of the intern's time is preempted and preoccupied by educational activities, he has relatively less time for service to the hospital. Hence, either more interns must be obtained to do what fewer used to do, or other arrangements must be made. For example, in some hospitals the fourth-year clinical clerk does part of what the intern used to do—and pays for the privilege—; while the intern receives a fifth year of instruction at the expense of the hospital. All in all, as one of its consequences, the intern education program has created a greater demand for interns.

How well has this system worked? It is worthwhile to review the record and present status of the system of intern placement.

Data on Availability and Occupancy of Approved Internships. Only 21 per cent of the nation's 6,845 hospitals with 50 per cent of the total beds provide approved training programs. Of these 1,438 hospitals with approved training programs, 50 per cent offer internships and residencies; 40 per cent only residencies; and 10 per cent only internships.

Twelve per cent of the hospitals providing 21 per cent of total beds nationally offer training for interns.

In 1914 when the first list of approved hospitals was published by the Council, there were 2,767 internships available in 508 hospitals. Although there were 3,594 medical graduates, only 2,527 appointments were made. One third of the graduates did not seek hospital training.

But by 1926, there were 4,727 available internships and 3,962 medical graduates. For the first time the available internships exceeded the number of graduates and that situation has continued to prevail, the imbalance has become more and more pronounced all the while. In 1946 approximately 8,100 internships were available, but there were only 5,800 medical graduates.

Today, the number of approved intern positions is almost twice the number of students graduating each year from the country's medical schools. For the academic year 1959-60 there were 12,580 intern positions offered in 865 hospitals. Of this total of available internships, 10,253 or 82 per cent were filled on September 1, 1959. The National Intern Matching Program provided 6,500. The balance of 3,700 were filled by other means. Approximately 288 United States medical school graduates did not participate in the National Intern Matching Program, and 251 who did participate were unmatched. Both groups probably obtained internships. Second-year interns added an indeterminate number to the total of filled positions. But 25 per cent (2,545) of the intern positions were filled by foreign physicians. Eighteen per cent or 2,327 of the available internships were vacant. The vacancy rate for internships was up slightly, about 1 per cent.

According to the National Intern Matching Program, each year approximately 120 hospitals completely fill some 2,500 positions offered. At the other extreme, some 290 hospitals fill no positions.

In passing, it is worthwhile to speculate on the reason for this disparity. It raises the question: What enters into a graduate's decision in his choice of a hospital for internship? It is not within the present purview to explore this point thoroughly, but some obvious answers come readily to mind. Foremost among them, it is likely to be a hospital in which he believes that he has a chance of consideration on the basis of his academic record. But beyond such preliminary practicalities in weighing possibilities, it is reasonable to assume that the graduate places a premium on the prestige of a hospital. By and large at the present

time, the medical school-affiliated hospitals hold the prime position in prestige. He thinks also of the prestige of the chief of a service in which he hopes to take a residency. In short, it is believed that many medical graduates tend to seek internships in hospitals where they hope to obtain residency appointments.

The figures which have been cited are typical of the situation over the past decade. The important points are that 2,327 internships in approved hospitals were vacant, and that 2,545 filled positions were held by foreign physicians. It is worthwhile to ponder on the impressive extent to which foreign-trained physicians are filling the number of available internships, yet to contemplate what the loss of them would mean. For, the figures indicate the precarious position of the hospitals in their dependency on foreign physicians and the potentiality of an alarming situation over intern vacancies in hospitals. If foreign physicians as a source of interns had been completely cut off in 1959 for whatever reason, 43 per cent of the available internships would have been vacant. For the future, this supposition is neither idle speculation nor a remote contingency. At present this source is threatened by the outcome of the recent examinations. Looking ahead, it is anticipated that, at best, only a fraction of the present number of foreign physicians will be available to fill internships.

It is also especially to be noted that 5,407 hospitals with 800,672 beds have no approved training program. Their record in obtaining interns may be easily imagined. Particularly overwhelming is the thought of what would happen if all these hospitals presently unapproved for interns were to gain this recognition.

Even without this hypothetical development the shortage of interns is extremely serious. The Council on Medical Education and Hospitals in its publication "Essentials of an Approved Internship" admits its existence. It states: "One aspect of intern education which warrants consideration is the growing discrepancy between the number of internships offered in hospitals approved for intern training and the number of applicants available to fill them. While this disparity, *per se*, is of no great import, its effect on the stability of internship programs throughout the country is of serious consequence." However, not all approved hospitals would pass off the shortage as of no importance.

It is apparent that there is a shortage and that there is considerable inequality in distribution of available supply, resulting in haves and

have-nots. For a considerable number of approved hospitals the present situation is bleak; the prospects are little brighter. An attempt to staff all hospitals, including those unapproved, with interns is a rather sobering contemplation.

One conclusion may be sharply drawn. There are not enough graduates from American medical schools to fill all available internships in approved hospitals. It is ironical that many hospitals met the requirements for approval in order to obtain interns. The seriousness of this shortage of interns cannot be overestimated.

Proposed Remedial Measures. Some hospitals, acutely aware of the intern shortage and desirous of meeting it, have recommended reestablishment of a basic two-year internship similar to that in effect prior to 1943. As late as 1941, 22 per cent of the approved internship programs were from 12 to 24 months in duration. Resolutions aimed at reestablishing the two-year internship have been introduced repeatedly at the annual session of the House of Delegates of the American Medical Association. Some would make the first year rotating and the second year optional straight. With recognition that few graduates would want to serve a second year just as an intern and without credit for potential Board use, the plan carries the suggestion that such graduates be given the designation of assistant resident in the second year and Board credit. This proposal is motivated by a dual objective: 1) to provide more adequate training for physicians for entrance into practice; it is based on the belief that a one-year internship is not sufficient; 2) to provide enough interns for approved hospitals.

A new two-year program in family practice, which is essentially the plan just described, was approved by the House of Delegates of the A.M.A. in June 1959 and is now being established in carefully selected hospitals.

It is worth noting that the one solution for relieving intern shortage that has substantial backing and official recognition would add still more time to the preparation of the physician for practice, a consideration that is believed to be already adversely affecting recruitment to the medical profession. It would thus run counter to another goal, shortening the training period. Furthermore, it would be effective only to the extent that medical graduates are now entering practice after a one-year rotating internship. I have been unable to find published figures on the annual number and percentage of interns serving only a one-year

internship before entering practice. But the percentage of medical graduates in 1958 reportedly planning to enter general practice may furnish an approximation sufficiently close for the present purpose. It is 21 per cent. If it is assumed that all of them are now taking only a one-year internship before entering practice, the proposed plan would reenforce the intern personnel of the nation by only one fifth of the medical graduates. Finally, if a straight internship with credit were allowed for the second year it would encourage accentuation of the already heavy trend to full residency, Board qualification, and more specialists.

Another obvious solution to the intern shortage is increased production of physicians. Even if this step were possible, it may be questioned whether it is sound reasoning to favor production of more physicians in order to provide enough interns for all approved hospitals. This is scarcely a compelling argument.

Still another possible answer to the problem is more equitable distribution of the existing supply of interns. With no necessity of justifying the self-determined complement, some individual hospitals may be requesting more than their fair share, more than they really need. A combination of justification of need, quotas, and rationing might help to ease the overall shortage.

It may also be that medical schools can never keep up with the demand for interns, that they can never produce physicians in sufficient numbers to fill all internships. It is fair to ask why so many hospitals have already been approved for intern training and others are preparing to seek approval, when the number of available interns is patently insufficient to staff all of them. It is conceivable that if no fancied or inferred sense of inferiority were attached to lack of approval, hospitals might be content to try substitute measures for the intern's duties rather than to seek an empty and futile recognition through approval but obtain no interns. In conjunction with this step it may become necessary to be less cavalier and more receptive towards adequate substitute measures for performance of interns' duties in hospitals unsuccessful in attracting interns. Certainly many hospitals are operating without them. Feasible and satisfactory substitute measures merit intensive study.

In this problem of intern shortage there are three interests to be served: the hospital's; the intern's; and the patient's. It would seem reasonable to suppose that the last takes priority over the first two; indeed, the first two subserve the third.

The Residency Training Program

The residency is the next step in medical education after the internship. In the plan of training it leads to qualification in a specialty. Residencies in 21 branches of medicine have been approved by the Council; residency training is now offered in 28 specialties and subspecialties. These residencies provide advanced training in preparation for certification by a Board in each specialty and practice in it.

It will be recalled that the Council in describing the guiding principles of its intern training program inferentially weighed the relative considerations of education, service to the hospital and medical care to the patient and flatly asserted the paramount position of education. In contrast, in its pronouncement on the residency training program, it takes a more moderate and harmonizing attitude on the issue. It states: "While the educational program is supplementary to the primary purpose of the hospital, i.e., the care and management of patients, it is directly related to this function in that it serves to improve the quality of medical care offered."

With the exception of a few specialties, a fully organized, comprehensive residency training program extends over three or four years. Actually the duration of the program varies to a considerable extent since it is influenced both by the requirements of the various specialty boards and the system of organization in the residency staff of the hospital. For example, an approved residency in anesthesiology requires a minimum of two years after internship for Board qualification; whereas surgery specifies a minimum of four years. Some hospitals have a pyramidal system of organization of the resident staff. For example, on the surgical service there may be one chief resident with 12 or 15 assistant residents in various stages of training, first, second, or third-year assistant residents. This situation creates a bottleneck. It is obvious that three or four or even more third-year assistant residents are in training for one position, the chief residency. In consequence, there are more eligible candidates for a chief residency than there are openings. Few hospitals experience difficulty in filling this position.

At this point one criticism of the system of residency training should be set forth. The system necessitates an early and irrevocable choice on the part of the medical student at a time when he may not have sufficient experience and familiarity with the matter that he is deciding. He

is constrained to commit himself to preparation for and to embarking upon training for a specialty with a serious penalty in time for later abandonment of it. Change to a different specialty means starting anew.

Published figures on the percentages of drop-outs and occupants of limited, incomplete residencies are not available. But it is possible to calculate indirectly an approximation. About 4,000 residents are certified by the Boards each year. If it is assumed that there were no drop-outs and incompletions and that the residency period extended over four years, there would be 16,000 residents in training. Actually, 26,000 residencies are filled. Therefore, there is a loss of 10,000 residents in the process of training. Since 25 per cent of the residents are foreign-trained physicians, they probably represent about 65 per cent of the incompletion. But that still leaves 35 per cent (3,500 to 4,000) of the drop-outs and occupants of incomplete residencies who are American-educated physicians.

Requirements for Approval of Hospital. In conducting or applying for approved residency programs, hospitals must meet requirements laid down by the Council on Medical Education and Hospitals of the A.M.A. Qualifications and organization of the staff of physicians in the hospital are specified, including members of the attending staff. Although the Council's requirements pertaining to the staff for a residency program specifically state "well qualified, experienced and proficient physicians, whether or not they hold membership in special societies and colleges or are certified in their specialty", its investigators make a point of recording the number of diplomates on the staff of each hospital seeking or holding approval.

Data on Availability and Occupancy of Approved Residencies. Nineteen per cent of the nation's hospitals with 47 per cent of total beds are approved for residency training. Slightly more than half of these hospitals offer both internships and residencies; slightly less than half, only residencies.

Between 1941 and 1947 the number of available approved residency positions increased almost threefold. By 1952 they were more than fourfold; by 1955, more than fivefold; and by 1958, more than sixfold. Thus in nineteen years the total residencies offered had increased from 5,256 to 31,733.

The vacancy rate was only 6 per cent in 1949; but it rose to 25 per cent in 1950. Then it gradually dropped to 18 per cent by 1957.

During the academic year 1959-60 there were 31,036 physicians pursuing specialty training in hospitals. Available residency positions totaled 31,733, of which 13,302 (42 per cent) were first-year positions. Filled residency positions amounted to 27,531; of this number, 11,494 were first-year appointments. There were 4,087 vacancies among residency openings. As with internships, only about half of all approved first-year residencies can be filled with American-educated graduates.

The overall occupancy rate for all residencies offered was 87 per cent, a gain of three per cent over the previous year. Of the 9,457 foreign students training in hospitals throughout the United States, 6,912 were reported as resident physicians. They constitute 25 per cent of all resident physicians.

Even though foreign physicians occupied 25 per cent of all filled residencies, there was a 13 per cent vacancy rate. Without the foreign physicians it would have been 38 per cent. On the whole, this record is somewhat better than that for interns, but it could scarcely be rated as satisfactory. Manifestly there is a shortage of residents as well as interns.

On the hospital falls the pressure to retain its approval for residency training. It faces the necessity of filling its quota year after year in a short market. Time, effort and money go into the planning and organization of a residency training program in order to improve the services of the hospital, to render better medical care, to merit community prestige, and to obtain residents.

But the residency system makes heavy demands on more than hospitals. For the residents it requires a long and expensive training period. This requirement contributes largely to the costly and time-consuming aspects of medical education which in turn are believed to be a deterrent to potential recruits to the medical profession. Also, it may be noted that the residency system undoubtedly adds to the cost of medical care.

But above all, it is the rapid growth of the residency training system, its trend and present magnitude that are foremost in importance in considering it for present purposes. It explains the increase in the number of physicians in hospitals and their lengthy stay. The residency system is the training ground which has furnished and is furnishing in ever-growing numbers the newly predominant type of practitioner—the specialist. And it must be acknowledged that it is producing a superior physician.

SPECIALIZATION

So closely linked is the residency training program with specialism, as a production system is related to its product, that any further evaluation of the existing residency situation, its consequences and recommended changes, will now be viewed in conjunction with specialization.

Medicine is in the midst of a transition in its mode of production of specialists. Currently on the scene are three types of specialist, differentiated by their pathways to that status.

Traditionally and until recently physicians became specialists by the escalator system. After appointment to a service in a hospital, the physician gained experience and increasing responsibility in the course of duty, won promotion through successive posts, and finally received recognition as a *de facto* specialist. It was almost exclusively a system of on-the-job training.

The second type is the so-called self-styled specialist. Usually, he has a clinical appointment to a hospital. Since most hospitals are departmentalized according to specialties, to work in a department he must of necessity appear as a specialist in it. This status then extends to the outside. In the course of time he has himself listed in the American Medical Association Directory as a part-time or full-time specialist, depending on whether he limits his practice entirely or only partly to the specialty.

The third type of specialist is a Board diplomate. His certificate indicates that he has met the residency training requirements in an approved hospital and the examinations of a specialty board.

At present few specialists are being produced by the escalator system. It has been almost completely supplanted by the system of Board certification. The escalator system was not rescinded; it lost in competition with the Board system and was replaced by it. Apparently, hospitals which instituted residency training programs did not find it feasible to retain the escalator system. But many heads of services in hospitals approved for residency training programs reached their specialty status by the escalator route.

Its Growth. The phenomenal rapidity with which specialization has grown has already been set forth, but the topic merits elaboration. From 1931 to 1957, while practicing physicians were increasing at the rate of 16 per cent, the full-time specialists among them were increasing at the rate of 235 per cent. In 1931, only one private practitioner in six

considered himself a specialist; in 1940 the ratio was one in four. Today almost half of all physicians in private practice limit themselves to specialty practice.

Along with the increase in number of specialists, the number of certifiable specialists has also proliferated. In 1915 one Board was active; in 1924 a second was created. From 1930 to 1935 seven were added. Now examining and certifying Boards in 19 specialties, approved by the Council, are functioning. Three Boards certify candidates in subspecialties. Certification in the primary field is a requirement for certification in the subspecialties. Certificates in special divisions of their specialty are conferred by six Boards. Thus certificates may be obtained in 54 different specialties, subspecialties, or special divisions of specialties.

The number of licensed physicians certified each year by the Specialty Boards more than doubled in the seven years from 1942 to 1949, but it has since remained about stationary. In 1942 the Specialty Boards certified 1,756 physicians. The number rose slightly in the next year, but then declined in the succeeding two years. In 1947 the number began to increase, reaching 2,424. From 1949 to 1960 inclusive the average number of physicians certified each year was 4,145.

Since the rate of certification has been approximately constant over the past twelve years, while the rate of addition to the number of full-time specialists has continued to rise during that period, it may be speculated that this increase has come from physicians who had held residencies, had not sought or obtained certification, then later limited their practice to a specialty.

Over the past 25 years, while the number of specialists has been increasing by 235 per cent, general practitioners have been declining in numbers by 27 per cent. With the consequent change in proportions, the result has become an even ratio. In 1931 the ratio of general practitioners to full-time specialists was five to one; in 1957 it was about one to one.

If the present trend toward specialism and away from general practice continues unabated, ultimately the former will take over the remaining half and thereby all of medical practice.

It is not difficult to speculate on why physicians want to become specialists. Specialism carries premiums and privileges that give it luster. To name a few, not necessarily in ranking order: honor, prestige, higher professional status, superior professional ability, intellectual satisfaction,

and economic rewards. These are powerful inducements and attractions. Even the hospitals encourage, indeed exert pressure that contributes to the trend: there is no place for the general practitioner in the hospital. In short, the entire system of medical education, both directly and indirectly, is heavily weighted towards the acceptance of specialization. This strong current bears along with it the ever-mounting resident training enrollment. Specialism, the goal, is the stimulus to the production system.

Effects of Predominance of Specialists. If specialists come to outnumber greatly the general practitioners, this inversion is bound to have its consequences. One will be a change in the pattern of medical service; another will be accentuation of residency training. It is worthwhile to examine these potential effects in order to weigh the question whether it is medically necessary and in the national interest to encourage or even become resigned to the ever-increasing trend toward specialism accompanied by still further decline in general practice.

With predominance of specialization, the traditional and usual channel and sequence of medical care will no longer be available. With dwindling numbers of general practitioners the sick must perforce consult the specialist directly. Many are already by-passing general practitioners, either by choice or of necessity, to seek directly the services of the internist and pediatrician. Is this a desirable development that should be encouraged and expanded?

More than tradition upholds the function of the general practitioner; his role in the medical constellation has a sensible basis. There are degrees of illness; correspondingly, there are degrees of needed medical skill according to the nature and severity of the illness. Many, if not the large majority of illnesses, are not major and catastrophic with complex and abstruse diagnostic and therapeutic problems requiring the services of the specialist. Rather, they are the common and minor indispositions within the competence of the general practitioner for diagnosis and treatment. As for the lesser number of more serious and difficult illnesses that he encounters, the general practitioner is competent to make a tentative diagnosis and to refer the patient to an appropriate specialist. Thus the general practitioner is more than a diagnostician and therapist for these illnesses. He is a screener, router, and controller for any disease.

Abandonment of this system raises several questions: Is widespread general practice by a specialist a luxury rather than a necessity? For

ordinary illnesses, does the public need this costlier kind of medical service? Can the nation afford to allow the trend to continue? Is it a waste through misapplication of levels of medical expertness? Is it for this type of general medical practice that the specialist undergoes two to five years' training in residency?

As a second consequence of ever-growing specialization, medical education will be longer and costlier for a greater number of candidates. For, if the present trend continues, the residency training programs will have ever-larger enrollments. From the longer and costlier training period for more and more physicians will come in turn two effects: First, it may act as a deterrent to potential and able candidates to seek a career in medicine, thus contributing further to the declining reservoir of applicants. Secondly, it is almost certain to increase further the cost of both hospitalization and medical services. It is difficult to visualize how the increased cost of the educational period will not be passed on to the public. Today it is a common complaint that medical education is too long and too expensive, and that medical care is too costly. If the present trend to specialization continues and graduate medical training is ever more widely extended, it seems likely to have still further economic effects.

In view of the obvious problems accompanying the emerging changes in the practice of medicine, it is time to take cognizance of all the consequences, to take stock, and to ask pertinent and searching questions. Is unrestricted, predominant and widespread specialization desirable, medically necessary, feasible, economically sound, and in the national interest? Or is there an optimum ratio of general practitioners to specialists? If so, what is it? Should there be restrictions and controls, in short a ceiling, on the number of specialists to be trained?

Writing in 1947 on "Implications of Current Trends Towards Specialization", Victor Johnson, Secretary, Council on Medical Education and Hospitals, raised the same questions: "With over 10,000 physicians now in residencies, with increasing numbers of medical graduates seeking advanced training in the specialties, and with unprecedented numbers desiring certification by the American Boards, it is incumbent upon us to give serious thought to the question, 'How many specialists in the various fields do we need in this country?' . . .

"Adding the total number of certified specialists (approximately 26,000, excluding probably about 2,000 who have died), the additional

number of physicians who are not certified but limit their practice to a specialty (about 13,000) and a fraction (about one third) of the 35,000 physicians who give special but not exclusive attention to a specialty (equivalent to perhaps 12,000), we arrive at a total of about 51,000 specialists now at work in this country. If the estimated 52,800 required specialists . . . even remotely approximates the truth, it may be that our present specialist population approaches the optimum number for the best medical care. On the other hand, no one should be so rash as to conclude from these meager data that this is necessarily the case.

"Further thought and study are necessary concerning the number of specialists required in this country to provide the best medical care, as well as the number which the economy of the country can support. Whatever conclusions may be reached, there should be no attempt to limit arbitrarily the number of specialists entering or preparing for any field of medicine except as educational resources may continue to set limits, or as the plans of individual physicians may dictate."

That was written 14 years ago. The question is still with us. Surely there has not been undue haste to answer it.

The Issues

Thus far the discussion has remained on a concrete plane. But it is helpful to move to an abstract level because most of the difficulties in modern education and practice are really the dilemma of two issues:

1. Medical education vs. medical care.
2. Superiority and quality vs. numbers.

It may be argued that there is no conflict between the alternatives in each issue and that is true. But they are competing goals. If the resources are not sufficient for the attainment of both goals in each dilemma, one may receive priority.

At first glance there may seem to be no basis for rivalry between medical education and medical care. Which is really paramount, the education of the physician or medical care of the patient, may in the abstract seem to be a pointless question. Each is desirable and necessary. But in a concrete situation the question of priority and precedence emerges. In such a way it has arisen over interns.

Originally in their work in the hospitals, interns devoted their time almost exclusively to medical service. Their work came to be an essential part of the hospitals' medical care. But the Council on Medical

Education and Hospitals introduced a policy with its intern training program that ran counter to the practice of the intern's medical service to the hospital. His service was interrupted and displaced in part by the training program with its demands on his time.

It was shortly after the intern training program was introduced that medical education and medical care were thrust into the foreground as rival goals. The reason was shortage of interns. Medical schools were not producing enough graduates to fill the openings for interns in all approved hospitals. And this shortage has persisted year after year for 35 years. Along with the shortage was uneven distribution; for no control is exercised over the distribution of interns. The educational training system placed medical school-affiliated hospitals at an advantage. Hence, they have fared best in attracting interns; nonaffiliated hospitals have had much less or no success.

The Council is positive and insistent in its declaration that education of the intern takes precedence over his service to the hospital. Forty years ago it asserted "that the internship can be conducted only in those hospitals in which the educational benefits to the intern are considered of paramount importance with the service benefits to the hospital of secondary importance". That assertion, unmistakably clear, has been reprinted in every succeeding edition of the "Essentials of an Approved Internship".

That dictum does not coincide with the natural interests of the unaffiliated hospitals and probably the viewpoint of much of the public. For them it is not the primary purpose of a hospital to be an educational institution. And nothing comes ahead of medical service to the hospital patients. It is unlikely that hospitals seek interns in order to gain approval and prestige. Rather it is the reverse. Hospitals seek approval in order to obtain interns. Hospitals need the services such as interns can perform. If they did not, it would make little sense for the unaffiliated to adopt intern training programs, which is not their principal function.

There is no mistaking one of the consequences of the present system of training programs. It has existed for several decades; it becomes increasingly critical; it holds little promise of spontaneous self-alleviation. No warning could be more clearly, more sternly, and more ominously expressed than that in the most recent "Annual Report on Medical Education": "The nation will never produce enough physicians nor can it possibly import enough foreign physicians to support ap-

proved training programs for however many additional hospitals might desire them. In the period ahead, it is quite likely that the competition between hospitals for approved training programs will be decided largely on a basis of the quality of the training programs. The total number of hospitals and programs approved for training may actually decrease as a result of the consequent recruitment failure of the hospitals with the least attractive programs."

In theory, it would seem possible for hospitals to provide medical care without the services of interns and residents. But in practice an equally satisfactory substitute system has not been found. The Council's suggestion that house officer positions be established with adequate salary provisions has not been feasible; for obvious reasons there are few physicians interested in such employment. Several expedients now in use are makeshift and stop-gap; a permanent solution is not in sight. But surely the problem is not insoluble; nor have all possible remedial steps been tried.

In general, medical education and medical care have a mutuality. Education influences the quality, appropriateness and economy of medical care; logically the reverse influence should be the stronger. Medical care should be a principal determinant of medical education. In this relationship it should not be forgotten that education is a means, not an end. That concept might well be the guiding principle in efforts to restore balance and preserve mutuality.

A more pertinent question than paramountcy of either medical education or medical care would be how to accommodate to their mutuality. All in all, it seems most reasonable and practicable that the ultimate solution should come on the basis that the interests of both medical education and medical care should be served. To seek to achieve the most for each without adversity to the other would be the objective. It is scarcely a satisfactory situation for service and medical care to have a proportion of the hospitals ideally staffed with interns, but a still larger proportion with few or none.

Equally perplexing is the dilemma of quality versus quantity. In the education of medical students and physicians, if the goal is superiority for all with a long intensive period of training, it becomes difficult to satisfy the need for quantity.

Because of the superiority and high quality of modern physicians, it is almost presumptuous to raise questions about and examine the sys-

tem of education that produces them. Understandably, this very superiority engenders a reluctance to suggest any modification. Difficult as it is to amend a situation of inferiority, it may be even more of an undertaking to obtain alterations in a superior system.

Just as important as the plight of hospitals with shortage of interns is the predicted shortage of physicians for the future. It is estimated that not enough physicians will be produced unless new medical schools are established. To aggravate the situation, it is believed that there is a trend to decline in the number and quality of potential candidates.

Against this is to be considered the change in the pattern of medical education and medical practice. There has been an enormous increase in the number of physicians enrolled in residency training and in the proportion of specialists in practice.

Between the two situations a relationship may be postulated. The number of physicians impounded in residency training for several years is substantial. The lengthy period of medical education, extremely long if it includes residency training, and its consequent expensiveness is thought to deter prospective medical matriculants. Careers of equal prestige are open in other fields with shorter and less expensive preparation.

This situation brings out the issue of quality versus quantity. When so many physicians are becoming specialists and the number of physicians is expected to be insufficient to meet the medical needs of the nation, it is time to reexamine the question of quality versus quantity. It would appear to be sensible to review from time to time the criteria for the production of physicians but particularly so during a period of shortage.

The following principles might well be considered in an approach to finding means of overcoming the impending shortage:

1. Present standards in medical schools should not be lowered.
2. The use of medical talent should be neither extravagant nor wasteful. The proportions in which general practitioners and specialists should be produced should be in accord with the needs of medical care.

Observance of these principles would not lower the quality of medical care either individually or collectively. Rather, by stepping up production it would raise the level of overall medical care for the nation.

Each of the dilemmas presents rival and competing goals. But it is

not impossible that they may be reconciled with sufficient satisfaction to both.

Proposals and Recommendations

It is to be strongly underscored that the purpose of this article is not to be oppositional to the building of more medical schools, one program proposed to overcome the shortage of physicians. Nor is it to oppose or derogate from intern and residency training programs; nor is it against the practice of specialties.

Rather, it is to call attention to:

1. The vastness and complexity of medical education in all of its ramifications.

2. The interrelatedness of its parts; of the system and its product, the physician, and the practice of medicine.

3. Some problems and difficulties in the changing pattern of education and practice: the anticipated shortage of physicians in the future; the reduction in number and quality of the candidates; the shortage of interns and vacancies in resident positions; the surge in the production of specialists; and the concomitant decline in production of general practitioners. On these the article focuses.

4. The necessity for a number of actions directed towards solution of these problems. It is unlikely that a single action will bring complete solution by reversing trends or otherwise dispelling difficulties. For example, it is by no means certain, indeed it is highly problematic that construction of new medical schools will banish these problems. If the system of medical education is untouched and the trends continue, additional schools may magnify rather than diminish the situation. Even in considering multiple actions it is to be borne in mind that a single step capable of lessening one problem may aggravate another.

This article has presented nothing new in data and facts. Nor is it the first presentation of the difficulties and problems associated with medical education and the practice of medicine today. It is therefore not in the nature of a revelation. But for the most part, the difficulties and problems have previously been described and discussed singly and separately. Here they are brought together in the conviction that only a comprehensive approach can lead to an adequate solution.

The Cardinal Point. The cardinal point is that the entire system of medical education including graduate programs and medical practice

should be considered in breadth as well as depth before any step of major proportions is taken. To proceed on the basis of piecemeal thinking, of attempting to solve one problem detached from the others, of acting on a part without regard for the whole may be futile, or worse, if it compounds other existing difficulties. For example, it has been shown that much of the current trouble is associated with the graduate phase of medical education. Building more medical schools or changing their curricula may have little effect in resolving those difficulties. What is more, establishing a new school is costly, time-consuming and difficult. It is important to be sure of one's goals, before embarking on expensive, *ex parte* ventures.

The Principal Question. In both the system of medical education and the practice of medicine the principal question is: What kinds of physicians and what numbers, both absolute and relative, are needed in modern society on a national scale? From that deceptively simple question manifold points and subordinate questions arise. To answer it the needs for medical manpower must be more precisely defined. Because the existing gross physician-population ratio is not sufficiently refined either as a measure or as a standard, its value is limited. A somewhat more detailed set of measurements and criteria based on a thoroughly considered policy should be established. By these guides and means the needs in quantitative terms may be calculated. Goals could then be set with consideration both to the needs and to the realistic, reasonable chance of their fulfillment. Medical education could be designed and fitted for the attainment of these goals which would reflect the conception of what the pattern of medical practice should be. For, so closely linked is the educational system with its product that once the goals have been defined, the means to attain them may be more readily and effectively shaped. What is needed is a master plan covering production and use of medical manpower. It should reflect a definite policy of appropriate and economical utilization of medical talent with recognition of the imperative need to resolve the present accumulated difficulties.

Content and Scope of Proposed Deliberations

In a survey of medical education and practice with formulation of a master plan, a number of points would merit consideration. To give an idea of the scope, several are summarized in appropriate categories.

I. It is to be noted that the present trends in the changing patterns of medical education and practice, though they are an expression of lofty aims and have many commendable features, are not without their weaknesses, faults, and shortcomings. If these trends continue, they and their troublesome aspects may become progressively larger and more pronounced. It is time to count the consequences. Certainly it would be difficult to give unqualified and unconsidered approval to a system that would bring increased or even continued shortage of interns, further decline in general practice, and rapid efflorescence of specialism to the point of preemption.

II. It is fair to presume that the physician-population index in its present form as a measure is not sacrosanct. Certainly it is not sufficiently precise for purposes of planning. It denotes quantitative needs without regard to kinds. What is required is something more refined, namely, a set of ratios that will serve both functions by expressing the number of each kind.

III. To obtain these ratios it will be necessary to decide what kinds of doctors should be produced and in what proportions: how many clinicians, general practitioners, specialists, researchers, and administrators. It would seem to be a simple exercise in ascertaining what kinds are needed and in what numbers. But here the proposition is confused by the questions: Who should make the decision? What is the basis of it? It is not as irrelevant as it may seem at first glance to inquire whether the producer or the consumer group—medical organizations, medical educators, or the public—shall make the decision. Equally important is the basis of the decision on the kinds and proportions of doctors, whether need or desire shall be the criterion and whether appropriateness, economical production and use, national resources or size of the individual purse shall enter into the decision. In short, it raises the question which group shall have the final voice by either authority or economic control, and whether their decision will be reached with disregard for possible wastefulness of time, money, and educational facilities.

IV. If the present objective of well-trained physicians to practice medicine of high quality is to prevail, it may well be asked whether this is to be interpreted to mean more and more specialists, i.e., accentuation of the present trend. In evaluating this trend to an increased proportion of specialists it should be tested by the standards of whether

such a development is medically necessary, feasible, and economical in use of medical talent. To be quite concrete, should Board diplomates be serving as family physicians; is it an economical use of their talent and training? To put it more frankly, when expensively educated specialists engage in general practice to treat minor illnesses, is it not a wastage of training and an extravagance that the nation can ill afford? At some point it becomes desirable to calculate the optimum ratio that should prevail between specialists and general practitioners. At present it is one to one. If the trend continues the general practitioner will be in a minority. It may be readily asked whether the nation's medical services need as many specialists as general practitioners, to say nothing of specialists outnumbering them. In the search for an optimum ratio it is certain that both quantity and quality must be satisfied with consideration of the economical production and use of physicians.

In this task choices and decisions not easy to make will have to be made, and they will determine the future of the general practitioner and the specialist. Yet, whether developments are planned or unplanned, that is in natural course, choices will be made.

The future of the general practitioner, the specialist, and the residency training program may be conveniently considered together since they are interrelated and a decision on one influences the others. If it is decided that the decline in general practitioners should be reversed, it cannot be done without diminishing production of specialists unless total production is increased. If in the latter event the additional numbers of physicians produced do not predominantly become general practitioners, the outcome will swell the ranks of specialists more than of general practitioners and continue the current trend.

However, if it is decided that more general practitioners but relatively fewer specialists should be produced, this choice carries the possibility of relieving some of the present difficulties while meeting numerical needs. One method of attempting to raise the numbers and proportion of general practitioners would be inducement with incentives as powerful as, and preferably more powerful than those attracting to specialism. Oppositely, a decrease in the production of specialists might be brought about by removing incentives and by imposing limitations in numbers. As for the latter step, just which class of specialists, the self-styled or the Board-certified, should be held in check would then become a conspicuous question. We are in a transition period in which

the Board-certifying system is supplanting the old escalator procedure.

But before the procedure producing self-styled specialists is consigned to limbo and its departure hastened by non-recognition or outright bans, it is necessary to fit additional pieces into the puzzle. More and more people are using hospitals; more practice of medicine occurs there. And hospitals are operated on a specialty basis. If they maintain their present policy concerning staff, they will continue to need specialists, perhaps more. Then too, through the growing trend to group practice, a pattern is being set for increasing numbers of specialists to become more firmly imbedded in the medical system. Incidentally, this pattern is emerging as one replacement for the vanishing family physician. Thus, on the one hand more general practitioners are believed to be needed as family physicians; on the other hand, all the trends and the existing situation point to a need for more specialists. If the latter are to be Board certified, the production quota will have to be raised, that is to say, the number of physicians in residency programs will have to be increased with consequences in time, expense, and finally in recruitment of medical students.

Alternatively, the procedure producing self-styled specialists may have to be retained or hospitals modify their staff policy. Perhaps self-styled specialists, either in part or in whole, will remain a necessity.

Actually, a decision on the kinds and proportions of doctors needed may affect the numerical needs of medical manpower. For example, it is conceivable that modification of the general practitioner-specialist ratio may influence the total of physicians needed. Here is truly an area in need of deliberation and planning. Sooner or later choices and decisions will have to be made.

Once a decision has been reached on the kinds and proportions of physicians needed and ratios have been calculated, the medical education system producing the physicians could and should be examined in the light of the resulting figures. Then the system could be geared to meet the detailed estimated needs. Especially to be considered would be the methods by which specialists are produced, both self-styling and certification. In the event that fewer specialists and more general practitioners are found to be needed, it would seem to be a sensible step to determine whether the self-styling method of creating specialists should be perpetuated. By the same token, measures for quantitative restrictions on the residency training program might have

to be considered. From the ratio set, decisions will be reached which will determine whether the residency training program is to expand, contract, or remain stationary; whether more hospitals will be encouraged to seek approval or others now having approval but experiencing difficulty in applying the program will relinquish it. Surely hospitals that have residency training programs should not have an inordinate number of resident vacancies. In the interest of all parties, there should be a closer balance between positions and available residents.

If the trend continues of more and more physicians in residency training, the content and length of the program become important because of the dwindling roster of candidates for medical schools. It might not be amiss to review the length of some of the residency training programs to determine whether they could be shortened without detriment. It has also been suggested that inspection of the residency training programs in hospitals should not stop with examination of the prospectuses, plans, and syllabuses, but should include a check on their effectuation.

V. In calculating the magnitude and nature of the medical manpower needed for the United States, its distribution is not to be overlooked. Indeed, it is usually accepted that rural practice differs from urban practice. This factor would have to be taken into account. Also, the uneven geographical distribution of physicians by states and sections would be an important item in a master plan.

VI. Upon turning to the earliest phase of medical education, that in the medical school, it is to be noted that much has been written and spoken about the medical schools: cost of construction and maintenance, the length and content of their curricula, and their production rate of physicians. It will be recalled that a major recommendation in the Public Health Service report was construction of new medical schools, perhaps 20 to 24, to meet the needs of the future.

But is establishment of this many new medical schools, which are expensive and time-consuming to build and costly to maintain, the only solution to the estimated future needs of medical manpower? Furthermore, assuming that the present system of medical education is maintained, will the construction of this number of medical schools relieve or aggravate the existing plaguing difficulties? If the record of the effects of opening more schools in the recent past is any gauge, the prospects of resolving the persistent difficulties are not encouraging.

Indeed, is the production of more physicians, with nothing else changed, the complete answer to the present situation? Or could the estimate of the number of new medical schools needed be reduced and the desired results, including mitigation of existing problems, be achieved by additional and other measures?

First to be ascertained is what effect reexamination of the need for physicians on the basis of kinds and proportions, as well as the adoption of various other measures, will have on the estimated total need. If, in this revised approach, the estimated need is still in excess of the expected production rate, obviously ways and means to meet the numerical goal becomes a concern.

Even then, before considering new construction, it might be profitable to examine the possibility of increasing the output of existing schools without sacrificing quality. To the extent that the present schools can carry an increased student load, fewer new schools would be needed. Because of the economy in time and money this source for solution has an attractive practicality. Incidentally, in view of all the circumstances, it may well be questioned whether so many new schools, 20 to 24, would be likely to be constructed in time to meet the need. Certainly with increased output of existing schools the desired objective would be achieved more rapidly and less expensively than by new construction.

There are several ways by which increased output may be achieved: 1) shortening the curriculum; 2) more efficient use of existing facilities; 3) new and more effective teaching methods, and 4) expansion of existing facilities. Germane, therefore, to any deliberations on this subject of medical schools and their rate of production of physicians are such topics as: content and length of curriculum with a view to modifying and shortening it; exploration of new teaching technics; the efficiency of medical schools in organization and function; their capacity for expansion. All these points are to be considered with a view to ascertaining whether the schools could carry an increased enrollment.

Quite apart from the potentiality in numbers, the kinds of physicians produced is of equal importance. It is pertinent to consider whether there should be several types of medical schools for producing the several kinds of physician. A school might then aim to produce predominantly one kind: general practitioner, potential specialist, researcher, administrator, educator, or a physician equipped to proceed

in any direction. It is then important to decide whether different aims require different methods and curricula; whether schools should differ among themselves in their aims and methods.

The questions on aims and ways and means just discussed in relation to existing schools apply equally to new medical schools. For if the present system of medical education is to be maintained without survey, deliberation or alteration, it is appropriate to raise the question again whether construction of new medical schools will indeed relieve or actually aggravate the present situation with its problems and difficulties.

VII. Finally, for several reasons the internship training program looms large in any view to production of physicians. Because of the pronounced shortage of interns in many of the hospitals, it becomes imperative to evolve corrective and preventive measures. Standards for quotas and rationing might even be considered. Lengthening the intern period has been proposed. Just how long the internship should be to produce a well-trained physician is a key question for educators, hospitals, and interns. In all this the competing goals of medical education and medical care will have to be weighed.

Nor should the value of preceptorships be overlooked.

Conclusions

To effectuate the master plan and to reach the goals may require a combination of actions: more medical schools, changed curriculum, increased output of existing schools, more effective and accelerated teaching, modification of intern and residency training programs, rationing of interns and residents, and measures affecting the production of specialists, both self-styled and certified.

The problems and difficulties outlined in this report—shortage of interns, vacancies in residencies, decline of general practitioners, the upward surge of specialists, and the diminishing reservoir of candidates for medical schools—are not temporary phenomena. They have persisted for several decades and have steadily grown to such proportions as to constitute established trends. Their seriousness does not need to be detailed. Unless corrective measures are instituted they are likely to grow worse. It would seem that the time has arrived to review comprehensively medical education in all its aspects in order to remove existing difficulties and meet the needs of the future.

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